

image carrier to thereby develop said latent image, said developer carrier comprises a sleeve and a stationary magnet roller accommodated in said sleeve,

said magnet roller includes a main pole configured to cause the developer to rise in a form of the magnet brush and an auxiliary pole configured to help said main pole exert a magnetic force,

a ratio of a shortest distance between said image carrier and said developer carrier to an amount of the developer scooped up to said image carrier is smaller than 10

$$\frac{mm}{g/cm^2},$$

and an electric field including an oscillation component is formed between said image carrier and said developer carrier,

wherein the oscillation component is configured to oscillate at least ten times within a period of time in which a given point on said image carrier moves away from a range in which the magnet brush remains in contact with said image carrier.

REMARKS

Favorable reconsideration of this application, in light of the present amendments and following discussion, is respectfully requested.

Claims 1-4, 5, 7, 8, and 10 are pending; Claims 1, 5, and 8 have been amended; Claims 6 and 9 have been canceled; and no claims have been newly added herewith. It is respectfully submitted that no new matter has been added by this amendment.

With regard to the rejection of Claims 1-4 under § 112, first paragraph, this rejection is respectfully traversed. Claim 1 has been amended herewith to remove the noted informality. It is therefore respectfully requested that this rejection be withdrawn.

As may be seen in Figures 14 and 15 of the present application, the Applicants have discovered that AC bias (oscillation component), when combined with a particular ratio

(Gp/Gd) as recited in the claims produces an unexpectedly superior quality of image.

Specifically, when an AC bias is combined with the claimed ratio Gp/Gd, an improvement in granularity may be observed. It is only through the Applicants' teaching in the present application and their discovery through experiment, as illustrated in Figures 14 and 15, that such benefits become obvious.

With regard to the rejection of Claims 5-7 under 35 U.S.C. § 103(a), Claim 5 has been amended to incorporate the subject matter previously recited in independent Claim 6. Specifically, Claim 5 includes the feature that the oscillation component oscillates at least ten times within a period of time in which a given point on said image carrier moves away from a range in which the magnet brush remains in contact with the image carrier.

Saijo et al. relates to an electrostatic latent image developing apparatus. As admitted in the Office Action, Saijo et al. (U.S. Pat. No. 4,825,241, hereafter Saijo) fails to disclose or suggest the claimed developing bias. In fact, Saijo does not disclose or suggest in any manner an oscillation component.

The Office Action attempts to rely on this admitted deficiency by applying Shoji et al. (U.S. Pat. No. 5,937,288, hereafter Shoji). Shoji relates to an image forming apparatus capable of forming an oscillation electric field in a developing region based on the particle size of the toner and the particle size of the magnetic carrier. However, because there is no teaching whatsoever of Saijo to indicate that any kind of oscillation component would be advantageous when combined with Saijo, it is respectfully submitted that the proposed combination of Saijo and Shoji is based solely upon hindsight reconstruction. In the absence of a suggested benefit in the teachings of Saijo, it is respectfully submitted that Shoji cannot properly be applied in combination therewith.

With regard to the rejection of Claim under 35 U.S.C. § 102(b) as anticipated by Nagao (U.S. Pat. No. 5,991,586), this rejection has been rendered moot by the incorporation of the subject matter of Claim 9.

Regarding the rejection of Claims 9 and 10 under 35 U.S.C. § 103(a) as unpatentable over Nagao in view of Shoji, this rejection is respectfully traversed. The subject matter of Claim 9 has been incorporated into Claim 8.

As admitted in the Office Action at page 4, Nagao differs from the claimed invention in the details of the developing bias. It is respectfully submitted that the remedying of the admitted defects of Nagao by the application of Shoji is the result of simple hindsight reconstruction.

Quite simply, there is no support in the teachings of Nagao to support the proposed combination. The Office Action additionally fails to cite to any teachings in Nagao to support the proposed combination. Accordingly, it is respectfully submitted that the combination of Nagao with Shoji is the result of hindsight reconstruction. It is therefore respectfully requested that this rejection be withdrawn.

Consequently, in view of the foregoing discussion and present amendments, it is respectfully submitted that the pending application is in condition for immediate allowance. An early and favorable action is therefore respectfully requested.

Respectfully requested,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Gregory J. Maier
Registration No. 25,599
Robert T. Pous
Registration No. 29,099
Attorneys of Record



22850

Tel No: (703) 413-3000
Fax No: (703) 413-2220
GJM:RTP:KDP:rac:dmr
I:\atty\kdp\20's\209045US\209045US-AfterFinal.doc

Marked-Up Copy
Serial No: 09/864,335
Amendment Filed on: 4-8-3

IN THE CLAIMS

Please amend Claims 1, 5, and 8 as shown below:

1. (Twice Amended) In an image forming apparatus for forming a magnet brush on a developer carrier and causing said magnet brush to contact a latent image formed on an image carrier to thereby develop said latent image, said developer carrier comprises a sleeve and a stationary magnet roller accommodated in said sleeve,

said magnet roller includes a main pole configured to cause the developer to rise in a form of the magnet brush and an auxiliary pole configured to help said main pole exert a magnetic force,

a ratio of a distance between said image carrier and said developer carrier, as measured at a boundary of a nip for development, to a shortest distance between said image carrier and [a metering member] said developer carrier is 1.5 or below, and an electric field including an oscillation component is formed between said image carrier and said developer carrier.

5. (Twice Amended) In an image forming apparatus for forming a magnet brush on a developer carrier and causing said magnet brush to contact a latent image formed on an image carrier to thereby develop said latent image, said developer carrier comprises a sleeve and a stationary magnet roller accommodated in said sleeve,

said magnet roller includes a main pole configured to cause the developer to rise in a form of the magnet brush and an auxiliary pole configured to help said main pole exert a magnetic force,

a ratio of a shortest distance between said image carrier and said developer carrier to a shortest distance between said developer carrier and a metering member, which regulates the developer, is smaller than 0.8, and

an electric field including an oscillation component is formed between said image carrier and said developer carrier,

wherein the oscillation component is configured to oscillate at least ten times within a period of time in which a given point on said image carrier moves away from a range in which the magnet brush remains in contact with said image carrier.

8. (Twice Amended) In an image forming apparatus for forming a magnet brush on a developer carrier and causing said magnet brush to contact a latent image formed on an image carrier to thereby develop said latent image, said developer carrier comprises a sleeve and a stationary magnet roller accommodated in said sleeve,

said magnet roller includes a main pole configured to cause the developer to rise in a form of the magnet brush and an auxiliary pole configured to help said main pole exert a magnetic force,

a ratio of a shortest distance between said image carrier and said developer carrier to an amount of the developer scooped up to said image carrier is smaller than 10

$$\frac{mm}{g/cm^2},$$

and an electric field including an oscillation component is formed between said image carrier and said developer carrier,

wherein the oscillation component is configured to oscillate at least ten times within a period of time in which a given point on said image carrier moves away from a range in which the magnet brush remains in contact with said image carrier.

Claims 6 and 9 (cancelled).